BY ORDER OF THE
BASE COMMANDER

GRAND FORKS AIR FORCE
INSTRUCTION 91-102

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Safety

MOVEMENT OF EXPLOSIVES

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFPD 91-2, *Safety Programs*; AFI 91-202, *The US Air Force Mishap Prevention Program;* and AFMAN 91-201, *Explosives Safety Standards.* It establishes responsibilities and procedures for the movement of explosives by motor vehicle on Grand Forks Air Force Base (GFAFB). It applies to all organizations and contractors involved in the movement of explosives. All tasked agencies will be familiar with and comply with the procedures set forth in the Installation Security plan 31, Tab A to Appendix to Annex T (DOE) and Tab B to Appendix 4 to Annex T (Arms, Ammunitions and Explosives).

SUMMARY OF REVISIONS

Changes are; **2.4.1.2.**, **2.4.1.2.1.**, **2.4.1.2.2.**, **2.4.1.2.3.**, **2.4.1.3.**, **2.9.**, **6.2.4.1.**, **6.3.**, **7.1.3.**, and **9.5.** Include the definition for Hazard Class 1.2 subdivisions. Identifies the explosives limit for HC/D 1.3 at the railhead. **A bar (|) indicates a revision from the previous edition.**

1. References:

1.1. AFJI 24-211V4, Defense Traffic Management Regulation: Transportation Facility Guide, Air Force

1.2. AFI 31-101, Air Force Installation Security Program.

1.3. AFI 91-202, The US Air Force Mishap Prevention Program.

1.4. AFMAN 91-201, Explosives Safety Standards.

1.5. GFAFBI 91-201, Explosive Safety Program.

1.6. Technical Order (T.O.) 11A-1-46, Fire Fighting Guidance, Transportation and Storage Management Data and Ammunition Complete Round Chart.

1.7. Title 49, Code of Federal Regulations, Transportation.

1.8. Bureau of Explosives Tariff, BOE-6000-N.

1.9. DOE Explosives Safety Manual.

1.10. AFMAN 32-4004, Emergency Response Operations.

1.11. GFAFB ISP 31-02, Installation Security Plan.

1.12. DOD C.5210.41-M, Nuclear Weapons Security Manual.

2. Explanation of Terms :

2.1. Driver. Any person authorized and qualified to operate vehicles loaded with explosives.

2.1.1. DOD drivers and operators of vehicles and equipment will be carefully selected, physically fit, adequately trained and tested in the operation of the type of vehicle or equipment being used and informed of the explosives hazards involved as outlined in AFMAN 91-201. Supervisors or managers will provide training with help from unit weapons safety personnel. As a minimum, the training will address vehicle placarding, munitions compatibility while being transported, munitions delivery routes, vehicle inspection, cargo tie down requirements, vehicle refueling safety requirements and emergency procedures.

2.2. Escort Vehicle. A vehicle used to escort explosives laden vehicles when required by this instruction.

2.3. Explosives. All ammunition, munitions fillers, demolition material, solid rocket motors, liquid propellants, cartridges, pyrotechnics, mines, bombs, grenades, warheads of all types, explosive elements of ejection and aircrew egress systems, air-launched missiles and those explosive components of missile systems and space systems and assembled kits and devices containing explosive materials. Explosives, explosive weight, net weight, and other like terms also refer to the fillers of an explosive item. Fillers may be explosive mixtures, propellants, pyrotechnics, chemical agents and other toxic substances.

NOTE: This term does not include liquid fuels and oxidizers used with missiles, rockets, and other such weapons or explosives items.

2.4. Explosives Hazard Classification. Identifies the hazardous characteristics of explosive items by their assignment of established hazard categories governing storage and transportation. These categories are United Nations Organization (UNO) hazard class and division and Department of Transportation (DOT) class. Explosives are classified by their predominant hazard. Explosives classified as other than Hazard Class 1 will be treated as and stored as explosives except when the net explosive weight (NEW) is zero. Explosives used by USAF organizations must have a hazard classification assigned (interim or final). Final hazard classifications for USAF explosives are listed in T.O. 11A-1-46, to include predominant hazard classifications.

2.4.1. UNO Hazard Class and Division:

2.4.1.1. Class 1 Division 1 (1.1) Mass-detonating explosives. Items in this division are principally blast hazards and may be expected to detonate when a small portion is initiated by any means. Examples: bulk explosives (TNT and C-4), bombs, demolition charges, and detonating cord (primacord).

2.4.1.2. Class 1 Division 2 (1.2) Non-mass detonating fragment producing explosive. Items in this division are principally fragmentation and blast hazards. The hazards may be either individual or in combination but do not mass detonate. Examples: 20mm high explosive incendiary cartridges, bomb fuzes and 40mm high explosive cartridges. The effects produced by the functioning of Hazard Class/Division (HC/D) 1.2 items vary with the size and weight of the item. HC/D 1.2 is separated into three sub-divisions for purposes of setting quantity-distance criteria. This is based on the quantity of explosives expected to explode at one time when a stack of these items is involved in a fire.

2.4.1.2.1. Subdivision 1.2.1 is the most hazardous items. These items have a net explosives weight for quantity distance (NEWQD) greater than or equal to 1.60 pound.

2.4.1.2.2. Subdivision 1.2.2 items have an NEWQD less than or equal to 1.60 pounds per item.

2.4.1.2.3. Subdivision 1.2.3 munitions do not exhibit any sympathetic detonation response in the stack test or any reaction more severe than burning in external fire test, bullet impact test, or slow cook-off test.

2.4.1.3. Class 1 Division 3 (1.3) Mass fire explosives. Items in this division burn vigorously and are principally a mass fire hazard. Examples: most rocket motors, pyrotechnic flares and signals.

2.4.1.4. Class 1 Division 4 (1.4) Moderate fire-no blast explosives. Items in this division present a minor fire hazard but no blast hazard. There is virtually no fragmentation or toxic hazard beyond the fire hazard clearance zone required for high-risk items. Examples: small arms ammunition without explosive projectiles, riot-control munitions, colored smoke grenades and most impulse cartridges.

2.4.1.5. Class 1 Division 5 (1.5) Very insensitive explosives. Items in this division, although mass detonating, are so insensitive that there is negligible probability of initiation or transition from burning to detonation in storage.

2.4.1.6. Class 1 Division 6 (1.6) extremely insensitive detonating substance (EIDS). Items in this division have demonstrated, through test results, that the mass and confinement effects of the ammunition case are negligible on the probability of initiation or transition from burning to detonation of the EIDS in transport or storage. Such ammunition, when intentionally initiated, will be incapable of transferring detonation to another.

2.4.1.7. Class 6 Division 1 (6.1). Items in this class division are toxic chemical agents, usually assembled without explosive components, or with explosive components that have very small blast or fragmentation hazards. Examples: chloroacetophenone (CN) tear agent, tear gas (CS) capsules, and mace dispensers.

2.4.2. DOT Hazard Classification:

2.4.2.1. Irritant (IRR). These items contain irritating material. Munitions in UNO Class 6, Division 1 are transported in commercial vehicles as DOT IRRITANT cargo.

NOTE: The specific UNO class and division and DOT class for each explosive item in the Air Force inventory are shown in T. O. 11A-1-46.

2.5. Explosives Holding Area. A specific area used to accommodate explosives laden vehicles before movement to an explosive storage area or to their next destination.

2.6. Explosives Parking Area. Designated areas at authorized entry gates for vehicles loaded with explosives.

2.7. Explosives Storage Area. Designated area of facilities containing explosives for the exclusive storage or warehousing of the bulk of the unit's explosives stocks. Facilities include igloos, magazines, operating buildings, modules, revetments, and outdoor storage sites.

2.8. Net Explosives Weight (NEW). The total quantity, expressed in pounds of explosive material or high explosives equivalency in each item or round, used when applying quantity-distance criteria or other explosive safety standards. For example, the total NEW for an explosives laden vehicle is the sum total of the explosive content of all items loaded on the vehicle.

2.9. Net Explosives Weight for Quantity Distance (NEWQD). The total quantity expressed in pounds, of high explosives equivalency in each item or round to be used when applying quantity-distance (Q-D) criteria or other standards. The NEWQD is equal to the NEW unless testing has shown that a lower weight is appropriate for Q-D purposes. If the NEWQD is less than the NEW, the reason is usually that propellant or other substances do not contribute as much to the blast effect as the same amount of high explosives would.

2.10. Refuge. Emergency assistance provided to Military Traffic Management Command commercial shipments for explosives in hazard class 1.4.

2.11. SAFE HAVEN. There are two types of SAFE HAVEN.

2.11.1. SAFE HAVEN for DOE shipments is defined in DOD C-5210.41, Chapter 7, Section F, paragraph 9 and AFMAN 32-4004, paragraph 2.7 & 2.9.

2.11.2. SAFE HAVEN (Commercial) for Military Traffic Management Command commercial shipments is defined in AFMAN 32-4004, para 2.8. This definition for SAFE HAVEN (Commercial) is for emergency assistance for hazard class/division 1.1, 1.2, and 1.3 commercial shipments of government explosives.

2.12. Vehicle. For the purpose of these instructions any device (truck, tractor, trailer, van, etc.) on wheels that is used to carry explosives cargo. Commercial vehicles are those operated by trucking companies authorized to transport explosives. Military vehicles are those registered and controlled by a DOD agency and its authorized or designated contractors (US Air Force, US Army, US Navy, etc.). DOE vehicles are those registered and controlled by DOE and DOE contractors.

2.13. Vehicle Inspection Station. Designated site where all motor vehicles carrying ammunition and explosives will be inspected by an authorized inspector.

3. Responsibilities :

3.1. Grand Forks Air Force Base personnel and organizations responsible for receiving, shipping and on-base transportation of explosives cargo will comply with this regulation. Additional guidance governing the movement of explosives can be found in references listed in paragraph **1.**

3.2. When contractual work to be performed requires explosives, GFAFB organizations utilizing authorized or designated contractors will notify the 319 ARW Weapons Safety Office in writing of the

contractor's qualifications to transport explosives on GFAFB and the duration of the contractual obligations. POC for the contractors and the responsible contracting agencies will be provided.

3.3. Organizations that receive or ship explosives will notify their carriers of the provisions of this instruction.

3.4. DOD organizations will inspect military vehicles used for transport of all explosives. Vehicles used to move explosives internally will be inspected according to AFMAN 91-201. Military vehicles used to move explosives off base will be inspected using DD Form 626.

3.5. The 319 ARW/CP will:

3.5.1. For DOE shipments, obtain team commander's name, ID, time of arrival and nature of the problem (IAW Installation Security Plan).

3.5.2. Notify 319 ARW/CC, SPTG/CC and the SFCC.

3.6. The 319th Security Forces Squadron (SFS) will:

3.6.1. Ensure checklists comply with this instruction and the Installation Security Plan and the Security Force Control Center (SFCC).

3.6.2. Ensure 319th Transportation Squadron provides an escort for all commercial vehicles loaded with UNO hazard class and division 1.1, 1.2, or 1.3, or more than 1000 rounds of 1.4 small arms ammunition/explosives consigned to, or shipped by DOD agencies during the time such vehicles are in-transit on GFAFB.

3.6.3. Provide escort vehicles, upon specific request from a DOD organization, for military vehicles loaded with UNO hazard class and division 1.1, 1.2, or 1.3 explosives when such vehicles are in-transit on base. Such requests will be made to the 319 SFS only when the cargo is classified or is considered extremely hazardous.

3.7. The 319th Transportation Squadron will:

3.7.1. Inspect all commercial vehicles used to transport shipments of UNO hazard class and division 1.1, 1.2, 1.3 and over 1000 rounds of 1.4 small arms ammunition/explosives consigned to or shipped by DOD agencies.

3.7.2. Inspect all arriving commercial explosive laden vehicles for DOD organizations or vehicles requesting SAFE HAVEN/REFUGE for safe loads prior to proceeding to off-load destination or parking in one of the SAFE HAVEN/REFUGE locations.

3.7.3. Inspect all DOD outbound explosives commercial shipments to ensure shipment meets DOT requirements.

3.7.4. Ensure the AFJI 24-211, Terminal Facilities Guide, United States Air Force, clearly reflects the capabilities of GFAFB for both day-to-day and emergency assistance (SAFE HAVEN/REFUGE) operations.

3.7.5. Coordinate on SAFE HAVEN/REFUGE parking areas and with MSA for temporary storage structures.

3.7.5.1. Ensure proper fire symbols are displayed for the hazard class/division of explosives at the parking areas/storage structure. Use DOT placards as outlined in Subpart F of Title 49, CFR, and Part 172.

3.7.5.2. Ensure the 319 CES Fire Alarm Communication Center is notified of changes to fire symbols at the parking areas/storage locations.

4. Procedures for Inbound and Outbound Explosives Shipments during Duty Hours.

4.1. Military Shipments.

4.1.1. Inbound Commercial Vehicles.

4.1.1.1. Drivers transporting explosives cargo (UNO hazard class and division 1.1, 1.2, or 1.3) for DOD agencies onto GFAFB will enter through the South Gate (primary) or Main Gate (alternate). Use of the main gate to transport explosive requires prior coordination/approval by the 319 ARW Weapons Safety Office.

4.1.1.2. Commercial vehicles will be parked outside the South Gate not obstructing traffic flow. The driver will call 319 SFS (SFCC) or 319 TRANS, by telephone and advise of the arrival, consignees, UNO hazard class and division of explosives and NEW.

4.1.1.3. Using DD Form 626, *MOTOR VEHICLE INSPECTION (TRANSPORTING HAZARDOUS MATERIAL)*, 319 TRANS will conduct an incoming inspection of the vehicle for safe passage to its delivery destination or to the appropriate SAFE HAVEN/REFUGE parking area.

4.1.1.4. 319 TRANS will call the base fire alarm communications center and give the UNO hazard class and division of explosives of the vehicle and its location when placed in SAFE HAVEN/REFUGE.

4.1.1.5. 319 TRANS will escort the driver to the destination of the consignee or the appropriate SAFE HAVEN/REFUGE parking area. (MSA for 1.1, and 1.2 explosives, and the Rail Head for 1.3 explosives or over 1000 rounds of 1.4 ammunitions) The explosive cargo will be off-loaded as required.

4.1.2. Outbound Commercial Vehicles.

4.1.2.1. All explosive shipments from DOD activities will be tendered only to motor carriers authorized to transport explosives and who comply with DOT and other safety regulations regarding the transportation of explosives.

4.1.2.2. 319 TRANS informs SFS and the base fire alarm communications center of Hazard Class and Division of the vehicle contents.

4.1.2.3. The vehicle will be inspected by 319 TRANS personnel for compliance with safety regulations before loading the explosives. DD Form 626 will be used to make the required inspection.

4.1.2.4. When the vehicle is loaded with UNO hazard class and division 1.1, 1.2, or 1.3, explosives and ready to proceed off base, 319 TRANS will provide an escort through the South Gate.

4.2. DOE Explosive Shipments

4.2.1. Inbound Commercial Vehicles

4.2.1.1. Drivers of DOE vehicles loaded with explosives will enter GFAFB only through the South Gate.

4.2.1.2. Before leaving the gate, the SFCC will call the base fire department communications dispatcher and give the UNO hazard class and division of explosives, NEW and the destination on base.

4.2.1.3. If a DOE driver has not been furnished a destination on base for the explosive cargo, the driver will park the vehicle at the railhead. The driver will ask for instructions from the SFCC. After receiving instructions the driver will proceed to the destination.

4.2.2. Outbound Commercial Vehicles

4.2.2.1. All shipments of explosive cargo for DOE will be loaded only on approved DOE vehicles.

4.2.2.2. Inspections of the vehicle and instructions pertaining to the explosive cargo for the vehicle driver will be according to procedures established by DOE.

4.2.2.3. The driver will depart the base through the South Gate.

5. Procedures for Explosives Shipments Arriving After Normal Duty Hours.

5.1. DOD Shipments.

5.1.1. If vehicles with explosive cargo arrive after normal duty hours (Monday through Friday 0700-1600), weekends or holidays, Security Forces Squadron Installation Entry Controller on duty will tell the driver that:

5.1.1.1. Formal receipt of the material cannot be accomplished unless prior arrangements have been made with 319 TRANS for DOD shipments (see Installation Security Plan for further action). 319 TRANS will notify 319 SFS of after duty delivery arrangements.

6. In-Transit Commercial Shipments. (SAFE HAVEN/REFUGE)

6.1. There is an agreement between the U.S. Commerce Department and Department of Defense that when mechanical problems or bad weather occurs, military bases will provide temporary parking of commercial vehicles laden with government explosives within the base's capability.

6.2. If such help is requested during duty hours, the following procedures will be followed:

6.2.1. Commercial vehicle drivers needing help will enter the base through the South Gate.

6.2.2. The vehicle will be parked outside the South Gate if there are no hostile threats to the security of the cargo. If an imminent threat exists, the vehicle will be brought just inside the gate to provide required protection. The vehicle driver will notify the SFCC Controller of the problem and request permission for temporary storage of the vehicle and explosive cargo. The driver will tell the controller the UNO hazard class and division of the explosives and the NEW.

6.2.3. The controller will relay the above information to the Command Post. The controller will then call the base fire department communications dispatcher and give the UNO hazard class and division of the explosives, the NEW.

6.2.4. The Command Post will activate the SAFE HAVEN/REFUGE checklist. Command Post personnel must ensure they receive sufficient information to determine required assistance prior to requesting permission from the 319 ARW/CC or CV.

6.2.4.1. Command post personnel will report SAFE HAVEN/REFUGE requirements IAW

AFMAN 10-206, Operational Reporting.

NOTE: Ensure 319 ARW/CC is provided exact information on whether an exercise or actual SAFE HAVEN is being requested.

6.3. 319 TRANS will ensure trucks and loads, in accordance with para **4.1.1.3.**; can safely travel to the SAFE HAVEN or REFUGE parking areas. Commercial vehicles requesting SAFE HAVEN (for hazard class/div 1.1, 1.2,) will be parked inside the Munitions Storage Area. HC/D 1.3, and 1.4 laden vehicles will be parked at the railhead. The explosives limit for HC/D 1.3 items will not exceed 140,000. At all times, the carrier maintains liability of his load until arrival at the shipment destination.

6.4. If SAFE HAVEN/REFUGE is provided to commercial carriers and a download is necessary to accomplish repairs, 319 TRANS will escort the vehicle to a storage structure determined by the Munitions Storage Area Service Contractor. Contractor personnel will assist the carrier in off loading and storing explosives if required. Upon completion of repairs, the carrier will upload from the storage structure and 319 TRANS perform inspection of the load.

6.5. The Munitions Storage Area Service Contractor will be responsible to make the appropriate notifications to the 319 CES Fire Alarm Communications Center when fire symbols are changed.

7. Transportation of Explosives within GFAFB.

7.1. Vehicle Inspection.

7.1.1. Vehicles used by DOD organizations and their designated contractors will be inspected according to AFMAN 91-201 before use.

7.1.2. Vehicles used by DOE and its designated contractors will be inspected according to DOE orders before use.

7.1.3. Vehicles transporting UNO hazard class and division 1.1, 1.2, 1.3, or 1.4 within the munitions storage area or to and from licensed storage facilities are not restricted to designated routes. Such movements will avoid built-up areas and key, mission-oriented facilities and equipments to the maximum extent possible.

7.1.4. Vehicles transporting UNO hazard class division 1.1, 1.2, 1.3, or 1.4 explosives from the Horse Shoe Hot Cargo area to the munitions storage area will move over the explosives movement routes (contact 319 ARW/SEW for large scale area map).

EXCEPTION: DOE and Special Weapons convoys on base, to include movements to and from Hot Cargo areas will follow 319 ARW/SEW approved routes. For more information on these routes contact 319 ARW/SEW.

7.2. DOD and DOE organizations transporting UNO hazard class and division 1.1, 1.2, 1.3, or 1.4. explosives within GFAFB do not need a security force escort unless the cargo is classified or extremely hazardous and an escort vehicle is considered necessary.

8. DOT Placard and Fire Symbol Requirements.

8.1. All commercial, DOD, DOE and designated contractor vehicles transporting explosives will display applicable DOT placards according to AFMAN 91-201 and DOT Title 49, CFR.

8.2. When vehicles are parked over 24 hrs or at the SAFE HAVEN/REFUGE parking areas, the approved fire symbols will be posted.

8.3. DOE vehicles involved in the courier shipment or transportation of explosives, Safe Secure Trailers (SSTs) and escort vehicles are exempt from placarding requirements.

9. Local Vehicle Transporting Basic Load Munitions Issues.

9.1. Prior to use, inspect motor vehicles used to transport explosives to determine that:

9.1.1. Fire extinguishers are filled and are in good working order. A minimum of two portable 2A:10BC or greater fire extinguishers are required for each vehicle transporting explosives.

9.1.2. Electric wiring is in good condition and properly attached.

9.1.3. Chassis, motor, pan, and underside of body is reasonably free of oil, grease, and fuel.

9.1.4. Fuel tank and feed lines are secure and not leaking.

9.1.5. Brakes, steering, lights, horn and windshield wipers are functioning properly.

9.1.6. Tires are properly inflated and free of defects.

9.2. Chock explosives loaded vehicles and trailers parked on any grade or ramp steep enough to cause vehicle to roll.

9.3. Refuel trucks before loading explosives.

9.4. Do not operate vehicles containing explosives until the cargo is checked to ensure safe transportation. For on base movements, explosives containers must be restrained, blocked, braced, tied down or otherwise secured to the vehicle to prevent movement and must not damage explosives or containers. Restraining devices may include chains and binders, cargo nets and tie-down straps, sideboards and tailgates, etc.

9.5. Do not leave explosives-laded vehicles unattended unless they are in a properly designated area, such as the munitions storage area, holding yard, or flightline holding area.

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